

CLAIMS

1. A wheel bearing unit that includes a stationary ring that has a stationary raceway on a stationary peripheral surface and is not rotated in operation, a rotary ring that has a rotary raceway on a rotary peripheral surface and is rotated in operation, a plurality of rolling elements provided between the stationary raceway and the rotary raceway, and a rotary flange provided to an outer peripheral surface of the rotary ring, and couples/supports a braking rotating body having a braking friction surface against which a friction material is pushed in a braking operation onto a side surface of the rotary flange at least in operation, comprising:

an encoder which is fixed to a part of the rotary ring and at least a part of which is made of a permanent magnet;

wherein the side surface of the rotary flange is processed into predetermined shape and dimension while rotating the rotary ring around the stationary ring in a state that the stationary ring, the rotary ring, and the plurality of rolling elements are assembled together and also a space in which the encoder is provided is isolated from an outside by fitting a stop plug or a cover to a part of the stationary ring or the rotary ring directly or via other member, and

the stop plug or the cover is removed from the stationary ring or the rotary ring after the side surface of the rotary flange is processed into predetermined shape and dimension but before the wheel bearing unit is fitted to a suspension system.

2. A wheel bearing unit that includes a stationary ring that has a stationary raceway on a stationary peripheral surface and is not rotated in

operation, a rotary ring that has a rotary raceway on a rotary peripheral surface and is rotated in operation, a plurality of rolling elements provided between the stationary raceway and the rotary raceway, and a rotary flange provided to an outer peripheral surface of the rotary ring, and couples/supports a braking rotating body having a braking friction surface against which a friction material is pushed in a braking operation onto a side surface of the rotary flange at least in operation, comprising:

an encoder which is fixed to a part of the rotary ring and at least a part of which is made of a permanent magnet;

wherein the braking friction surface of the braking rotating body is processed into predetermined shape and dimension while rotating the rotary ring that couples/supports the braking rotating body around the stationary ring in a state that the stationary ring, the rotary ring, and the plurality of rolling elements are assembled together and also a space in which the encoder is provided is isolated from an outside by fitting a stop plug or a cover to a part of the stationary ring or the rotary ring directly or via other member, and

the stop plug or the cover is removed from the stationary ring or the rotary ring after the braking friction surface is processed into predetermined shape and dimension but before the wheel bearing unit is fitted to a suspension system.

3. A wheel bearing unit according to claim 1 or 2, wherein the stationary ring is an outer ring that has an outer ring raceway as the stationary raceway on an inner peripheral surface as the stationary peripheral surface, and the rotary ring is a rotating member that is arranged on an inner diameter side of the outer ring and has an inner ring raceway as the rotary raceway on an outer peripheral

surface as the rotary peripheral surface.

4. A method of manufacturing a wheel bearing unit set forth in claim 1, in which the side surface of the rotary flange is processed into predetermined shape and dimension while rotating the rotary ring around the stationary ring in the state that the stationary ring, the rotary ring, and the plurality of rolling elements are assembled together and also the space in which the encoder is provided is isolated from the outside by fitting the stop plug or the cover to the part of the stationary ring or the rotary ring directly or via other member, and then the stop plug or the cover is removed from the stationary ring or the rotary ring before the wheel bearing unit is fitted to the suspension system.

5. A method of manufacturing a wheel bearing unit set forth in claim 2, in which the braking friction surface of the braking rotating body is processed into predetermined shape and dimension while rotating the rotary ring that couples/supports the braking rotating body around the stationary ring in a state that the stationary ring, the rotary ring, and the plurality of rolling elements are assembled together and also the space in which the encoder is provided is isolated from the outside by fitting the stop plug or the cover to the part of the stationary ring or the rotary ring directly or via other member, and then the stop plug or the cover is removed from the stationary ring or the rotary ring before the wheel bearing unit is fitted to the suspension system.

6. A method of manufacturing a wheel bearing unit set forth in claim 3, in which the side surface of the rotary flange provided to an outer peripheral surface of the rotating member or the braking friction surface of the braking rotating body that is coupled/supported to the rotating member is processed into predetermined shape and dimension while rotating the rotating member around

the outer ring in the state that the outer ring, the rotating member, and the plurality of rolling elements are assembled together and also the space in which the encoder is provided is isolated from the outside by fitting the stop plug or the cover to the part of the outer ring or the rotating member directly or via other member, and then the stop plug or the cover is removed from the stationary ring or the rotary ring before the wheel bearing unit is fitted to the suspension system.